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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DOVE, TRACY MAE

ART UNIT PAPER NUMBER

1745

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/372,531

Applicant(s)

BOHNSTEDT ET AL.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,7,8 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,7,8 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the communication filed on 3/18/05. Applicant's argument have been considered, but are not persuasive. Claims 1, 5, 7, 8 and 11-15 are pending. Claims 2-4, 6, 9 and 10 have been canceled. This Action is made **FINAL**, as necessitated by amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said pocket battery separator". There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said pocket battery separator". There is insufficient antecedent basis for this limitation in the claim.

Claims Analysis

The limitation "a useful life for a lead-acid storage battery" in claims 1 and 15 is not given patentable weight because it is an intended use limitation. The claims recite "a battery separator" with the exception of claim 14.

The limitation "insertion in said storage battery" in claim 13 is not given patentable weight because the separator is "a rolled-up battery separator". Furthermore, the limitations "a

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useful life for a storage battery” and “adapted to be cut into pieces for insertion in said storage battery” are not given patentable weight because they are intended use limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 7 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimes et al., US 4,396,689, as evidenced by Daramic II-V: Polyethylene battery separators for starter batteries.

Grimes teaches an electrochemical cell having a microporous separator sheet with a plurality of projections. The projections may be pebble shaped, rod shaped or a combination of pebble-shaped and rod-shaped. See col. 5, lines 1-25. Figure 7c of Grimes shows a separator with a plurality of studs on at least one side and two to four elongated vertical ribs in a center area of the at least one side. The studs and the ribs have the same height. Figure 7c discloses a separator similar to the inventive separator shown in Fig. 1 of the instant specification. The microporous sheet material is Daramic (ultrahigh molecular weight polyethylene, see Daramic II-V: Polyethylene battery separators for starter batteries) (5:31-34). The Daramic separator sheet is 100 vol% of a polyolefin (polyethylene). Grimes teaches the design of the projections allow for an expeditious flow of electrolyte (5:26-30). The electrolyte flows without entrapping gas bubbles about the projections. Grimes teaches the projections provide structural means against collapse of the separator against the conductive electrode surface.

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Grimes does not explicitly state the battery is in the form of a pocket or that the ribs/projections are formed on only one side of the separator.

However, Daramic II-V: Polyethylene battery separators for starter batteries teaches Daramic is a known separator material for forming pocketed electrodes. Daramic separators are flexible, foldable and sealable and are thus suited for making separator pockets for positive and negative electrodes.

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Daramic is a known separator material for forming pocketed electrodes. One of skill in the art would have known that pocket separators would not require ribs/projections on both sides of the separator pocket because only one side of the separator contacts an electrode (therefore there is no need for spacing projections on a side of the separator pocket that does not contact an electrode). Furthermore, Grimes teaches the disclosed separator-spacer is useful in the manufacture, construction and assembly of many different kinds of electrochemical cells and the invention should be interpreted as not being limited to a specific system (2:7-10). Grimes teaches the separator-spacer is useful in vehicular battery systems and is of prime interest to the automotive and battery industries (1:36-44). One of skill would have known that lead acid batteries are commonly used in automobiles and vehicular battery systems. Thus, Grimes at least suggests a lead acid battery comprising the separator-spacer of Grimes.

Regarding claims 11 and 12, Daramic II-V: Polyethylene battery separators for starter batteries teaches Daramic separators are known for forming pocketed electrodes and are foldable. When the separator shown in at least Figure 7c of Grimes is folded around an electrode

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with the ribs/projections providing spacing between the separator and electrode, the ribs/projections will be present on an inner surface of the separator as well as a bottom edge area.

*

Claims 1, 5, 7 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knauer, US 5,558,952 in view of Grimes et al., US 4,396,689, further in view of Daramic II-V: Polyethylene battery separators for starter batteries (www.daramic.com/pages/daramic_V.html).

Knauer teaches a pocket separator for retaining positive or negative electrode plates in an electric storage battery. The pocket separator is formed of a porous sheet that has a plurality of continuous vertical ribs, a plurality of broken inclined ribs at the side edges, and a plurality of broken vertical ribs in the center which engage the positive or negative plate in the pocket. The porous sheet material has a plurality of differently configured ribs on its inner surfaces. See col. 1, lines 49-64. The separator sheet is constructed of a synthetic resin such as polyethylene (100 vol% polyolefin) or other suitable material which is compatible with the battery environment where it is to be used (col. 2, lines 43-46). The pocket separator may be used in a lead acid electric storage battery (col. 3, line 28-col. 4, line 3). The ribs are contained only on an inner surface of the pocket separator.

Knauer does not explicitly state that the pocket separator has a plurality of studs on at least one side of the separator and two to four elongated vertical ribs in a center area of the at least one side.

However, Grimes teaches an electrochemical cell having a microporous separator sheet with a plurality of projections. The projections may be pebble shaped, rod shaped or a combination of pebble-shaped and rod-shaped. See col. 5, lines 1-25. Figure 7c of Grimes

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shows a separator with a plurality of studs on at least one side and two to four elongated vertical ribs in a center area of the at least one side. The studs and the ribs have the same height. Figure 7c discloses a separator similar to the inventive separator shown in Fig. 1 of the instant specification. The microporous sheet material is Daramic (ultrahigh molecular weight polyethylene, see Daramic II-V: Polyethylene battery separators for starter batteries) (5:31-34). The Daramic separator sheet is 100 vol% of a polyolefin (polyethylene).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Grimes teaches a microporous polyethylene battery separator may have many different types of projections on the separator sheet. The projections may be in the form of pebbles, rods or a combination of both. Grimes teaches a separator with a plurality of studs on at least one side and two to four elongated vertical ribs in a center area of the at least one side (Figure 7c). One of skill would be motivated to use the configuration shown in Fig. 7c for the separator of Knauer because Grimes teaches projections such as pebbles, rods or a combination of both are known in the art. Furthermore, Grimes teaches the discontinuous rod configuration of Knauer in Fig. 7b. Thus, Grimes teaches both Fig. 7b and 7c are known separator configurations. Grimes teaches that Figures 7a-7d are equivalent separator configurations.

Furthermore, Grimes teaches the design of the projections allow for an expeditious flow of electrolyte (5:26-30). The electrolyte flows without entrapping gas bubbles about the projections. Thus, one of skill would be further motivated to use the projection configuration of Grimes for the separator of Knauer in order to improve electrolyte flow.

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Furthermore, Grimes teaches the projections provide structural means against collapse of the separator against the conductive electrode surface. Thus, one of skill would be further motivated to use the projection configuration of Grimes for the separator of Knauer in order to prevent the separator from collapsing upon the electrode surface.

Furthermore, Daramic II-V: Polyethylene battery separators for starter batteries teaches Daramic is a known separator material for forming pocketed electrodes. Daramic separators are flexible, foldable and sealable and are thus suited for making separator pockets for positive and negative electrodes. Therefore, one of skill in the art would have been motivated to use the Daramic separator of Grimes for the pocket separator of Knauer.

One of skill in the art would have known that pocket separators would not require ribs/projections on both sides of the separator pocket because only one side of the separator contacts an electrode (therefore there is no need for spacing projections on a side of the separator pocket that does not contact an electrode). Regarding claims 11 and 12, Daramic II-V: Polyethylene battery separators for starter batteries teaches Daramic separators are known for forming pocketed electrodes and are foldable. When the separator shown in at least Figure 7c of Grimes is folded around an electrode with the ribs/projections providing spacing between the separator and electrode, the ribs/projections will be present on an inner surface of the separator as well as a bottom edge area.

Allowable Subject Matter

Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: the claim is directed toward a pocket battery separator comprising a microporous polyethylene sheet provided with a plurality of studs in a center area of at least a first side of the sheet and two to four elongated vertical ribs in the center area of at least the first side of the sheet provided with the plurality of studs. The ribs are formed of a different material than the separator sheet.

The prior art does not teach the claimed separator sheet with a plurality of studs and two to four elongated vertical ribs wherein the two to four ribs are a different material than the material of the separator sheet.

Response to Arguments

Applicant's arguments filed 3/18/05 have been fully considered but they are not persuasive.

The 35 U.S.C. 102(b) rejection in view of Grimes has been withdrawn. However, amended claims 1, 5, 7 and 11-15 are rejected under 35 U.S.C. 103(a).

Applicant argues the sheet separators disclosed by Grimes are not suitable for forming pocket separators. However, Applicant provides no support for this assertion. Examiner has provided a reference that teaches Daramic is a known separator material for forming pocketed electrodes. Daramic separators are flexible, foldable and sealable and are thus suited for making separator pockets for positive and negative electrodes. The microporous sheet material of Grimes is Daramic. Therefore the separator material of Grimes is clearly suitable for forming pocket separators. Applicant argues the separators of Grimes are intended for use in zinc-bromine batteries. This argument is not commensurate in scope with at least claims 1, 5, 7, 11-13 and 15 because the claims do not require the separator be contained in any particular battery.

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Only claim 14 requires a lead acid battery. Furthermore, Examiner points out that Grimes discloses the separator-spacer is useful in the manufacture, construction and assembly of many different kinds of electrochemical cells and the invention should be interpreted as not being limited to a specific system (2:7-10). Grimes teaches the separator-spacer is useful in vehicular battery systems and is of prime interest to the automotive and battery industries (1:36-44). One of skill would have known that lead acid batteries are commonly used in automobiles and vehicular battery systems. Thus, Grimes at least suggests a lead acid battery comprising the separator-spacer of Grimes.

Applicant argues “clearly Grimes relates to zinc-bromine batteries, and his generic disclosure about vehicles does not suggest otherwise”. Examiner disagrees. Grimes clearly teaches and suggests the disclosed separator-spacer may be used in other types of batteries. Grimes discloses the separator-spacer is useful in the manufacture, construction and assembly of many different kinds of electrochemical cells and the invention should be interpreted as not being limited to a specific system (2:7-10). Grimes teaches the separator-spacer is useful in vehicular battery systems and is of *prime interest to the automotive and battery industries* (1:36-44). One of skill would have known that lead acid batteries are commonly used in automobiles and vehicular battery systems. Thus, Grimes at least suggests a lead acid battery comprising the separator-spacer of Grimes. Furthermore, the separator-spacer of Grimes comprises a Daramic material. Examiner has provided a reference that teaches Daramic is a known separator material for forming pocketed electrodes. Daramic separators are flexible, foldable and sealable and are thus suited for making separator pockets for positive and negative electrodes. **Examiner emphasizes that only claim 14 requires a lead acid battery.**

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Applicant further argues the separator of Grimes would be incompatible with the Knauer pocket design and the skilled artisan would not be motivated to modify the Knauer device in view of Grimes. Again Examiner disagrees. Applicant provides no support for this assertion. Examiner has provided a reference that teaches Daramic is a known separator material for forming pocketed electrodes. Daramic separators are flexible, foldable and sealable and are thus suited for making separator pockets for positive and negative electrodes. The microporous sheet material of Grimes is Daramic. Therefore the separator material of Grimes is clearly suitable for forming pocket separators. Applicant has not addressed the motivation provided by the Examiner for rejecting the claimed invention as obvious. Specifically, Applicant has not addressed the Daramic II-V: Polyethylene battery separators for starter batteries reference.

Applicant argues the skilled artisan would not have been motivated to combine the teachings of Grimes with those of Knauer because Knauer relates to pocket separators for lead-acid storage batteries while Grimes relates to separators for zinc-bromine batteries. However, Grimes at least suggest the disclosed separators may be used for lead-acid storage batteries. Grimes teaches the spacer/separator may be used in vehicular battery systems. One of skill in the art would clearly have known that lead-acid batteries are used in vehicles. Grimes teaches the disclosed spacer/separator is of interest to the automotive and battery industries (1:36-43). Thus, Grimes at least suggests the disclosed separator may be used in lead-acid batteries.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the

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time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). This argument is not convincing because Applicant does not point out the "knowledge gleaned only from the applicant's disclosure" that Applicant asserts the Examiner relies upon. Figure 7c of Grimes teaches the separator design of the claimed separator sheet.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TRACY DOVE
PRIMARY EXAMINER

May 24, 2005